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What's Your Radiographic Diagnosis?

Marthina Greer*

History

A 14-month old intact female German Shepherd was presented with intermittent lameness of 14 days duration and swelling in the area of the distal left tibia. The area was tender and hot on palpation, there was disuse

*Ms. Greer is a third year student in the College of Veterinary Medicine, ISU.

atrophy of the muscles of the left rear leg, and the popliteal lymph node of the left leg was enlarged. The dog's temperature was 102°F. The dog had become depressed, had an irregular appetite, and had gradually lost 20 pounds over the last few months.

Radiographs were taken.



Figure 1: Craniocaudal and mediolateral views of the left hock joint and distal tibia and fibula of a 14-month old German shepherd with intermittent lameness and swelling of a 2 weeks duration.

Radiographic Diagnosis

The distal metaphysis and epiphysis of the left tibia is involved with both a productive and destructive localized bony lesion. These lesions extend to the distal end of the tibia but do not cross the joint space to involve the tibial tarsal bone. The soft tissue mass is most extensive along the medial and caudal aspects of the distal tibia. Cortical bone lysis is also most extensive in these areas. A Codman's triangle indicating displacement of the periosteum is also noted. These aggressive bony lesions in the distal tibia with both destructive and productive components are compatible with primary bony tumor.

On thoracic radiographs, there was evidence of metastasis to the lungs.

Comments

The owner was presented with the options of amputation and euthanasia. The dog was euthanized. Necropsy revealed no gross lesions except the swelling in the area of the

distal left tibia. The histologic diagnosis was osteogenic sarcoma with a significant cartilaginous component. There was not histologic evidence of metastasis to the lungs and the popliteal lymph node showed evidence of antigenic stimulation.

Osteosarcomas comprise approximately 80% of all bone tumors in the dog. Metastasis is most common to the lung, but lesions smaller than 1 cm cannot be detected radiographically. Osteosarcomas rarely metastasize to other bones.

The predilection sites for osteosarcoma include the proximal humerus, and distal radius most commonly, with the distal femur and distal tibia less commonly involved. They rarely cross the joint space. Large breeds are most susceptible and osteosarcomas are rarely seen in dogs less than 25 pounds. In these respects, this case is fairly typical. However, this case is unique in that osteosarcoma is seen most commonly in dogs 5 to 9 years of age and rarely in dogs under 2 years of age.

Book Review:

Abnormalities of Companion Animals: Analysis of Heritability

by C. W. Foley, J. F. Lasley, and G. D. Osweiler,

Carl Rischen*

This book begins with a brief review of basic genetic principles including brief discussions of abnormal chromosomes, gene function, and control of gene function. It continues with a discussion of the control and elimination of unwanted genes found in a population and briefly reviews basic breeding strategies. Although this section is not a comprehensive review of genetics and does not include a reference list, it does accomplish the intended goal of providing a quick overview of population genetics.

The bulk of the book is devoted to the discussion of specific genetic defects of dogs, cats, and horses, and it is organized for quick

and easy reference. There is a section dealing with each species, and subsections for defects of probable and possible genetic basis. These are further subdivided by body systems where specific defects are discussed individually. Common features of each discussion is a brief review of clinical signs, breed incidence, physiopathology, inheritance, and breeding recommendations. Additional features are a short list of references listed with each defect and a summary of defects by breed in the dog section.

Overall, this book may be useful for breeders and for clinics where a quick reference book is desirable. It offers a broad range of information in an accessible and concise format, and it provides a point of departure for further study.

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